Claims

The following is a copy of Applicant's claims that identifies language being added with underlining ("___") and language being deleted with strikethrough ("~~———~~") or brackets ("[[ ]]"), as is applicable:

1-25. (Canceled)

26. (New) An inkjet printhead assembly comprising:

a nozzle system including:

an ink chamber configured to receive liquid ink at ambient temperature, the ink being in a liquid state at the ambient temperature such that the ink need not be heated to enter the liquid state,

an orifice layer comprising at least one orifice from which ink contained in the ink chamber can be ejected, and

a heating layer comprising an electronic heating element configured to heat the liquid ink in the ink chamber from the ambient temperature to a first threshold temperature that is higher than the ambient temperature and a photon absorption layer configured to convert incident photon energy into heat; and

a laser system configured to selectively emit laser energy at the photon absorption layer of the nozzle system to heat the liquid ink in the ink chamber from the first threshold temperature to a second threshold temperature that is higher than the

first threshold temperature and to cause a volume of the liquid ink contained in the ink chamber to be ejected from the at least one orifice of the orifice layer.

27. (New) The inkjet printhead assembly of claim 26, wherein the printhead assembly is a page-wide array printhead assembly that spans a width of an entire page of print media.

28. (New) The inkjet printhead assembly of claim 26, wherein the printhead assembly is divided into a plurality of discrete areas arranged in a linear array along a length of the printhead assembly from one of its ends to the other, each discrete area comprising a plurality of the nozzle systems.

29. (New) The inkjet printhead assembly of claim 28, wherein the printhead assembly comprises a plurality of electronic heating elements, each electronic heating element being positioned so as to overlap a portion of at least two of the discrete areas such that the electronic heating elements can simultaneously heat the portions of the at least two discrete areas when the electronic heating elements are activated to allow portions of the discrete areas and the liquid ink they contain to be separately heated instead heating an entire volume of liquid ink.

30. (New) The inkjet printhead assembly of claim 26, wherein the electronic heating element comprises a heating resistor.

31. (New) The inkjet printhead assembly of claim 26, wherein the electronic heating element is separated from the photon absorption layer by an electrically insulating layer.

32. (New) The inkjet printhead assembly of claim 26, wherein the electronic heating element is substantially coplanar with the photon absorption layer but located at different positions along a length of the printhead assembly.

33. (New) The inkjet printhead assembly of claim 26, further comprising a transparent substrate on which the heating layer is provided.

34. (New) An inkjet printer comprising:

a printhead assembly including:

a plurality of nozzle systems arranged in a linear array along a length of the printhead assembly, each nozzle system including:

an ink chamber configured to receive liquid ink at ambient temperature, the ink being in a liquid state at the ambient temperature such that the ink need not be heated to enter the liquid state,

an orifice layer comprising orifices from which ink contained in the ink chamber can be ejected, and

a heating layer comprising an electronic heating element configured to heat the liquid ink in the ink chamber from the ambient temperature to a first threshold temperature that is higher than the

ambient temperature and a photon absorption layer configured to convert incident photon energy into heat, and

a laser system configured to selectively emit laser energy at the photon absorption layers of the nozzle systems to heat the liquid ink in the ink chambers from the first threshold temperature to a second threshold temperature that is higher than the first threshold temperature to cause volumes of the liquid ink contained in the ink chambers to be ejected from the orifices of the orifice layers; and

a print control system configured to sequentially activate the electronic heating elements of the nozzle systems across the length of the printhead assembly and to separately scan the laser system across the printhead assembly in synchrony with the sequential activation of the electronic heating elements so as to generate a continuous thermal wave that traverses the length of the printhead assembly.

35. (New) The inkjet printer of claim 34, wherein the printhead assembly is a page-wide array printhead assembly that spans a width of an entire page of print media.

36. (New) The inkjet printer of claim 34, wherein the printhead assembly comprises a plurality of discrete areas arranged in a linear array along the length of the printhead assembly from one of its ends to the other, each discrete area comprising a plurality of the nozzle systems.

37. (New) The inkjet printer of claim 36, wherein each electronic heating element is positioned so as to overlap a portion of at least two of the discrete areas such that the electronic heating elements can simultaneously heat the portions of the at least two discrete areas when the electronic heating elements are activated to allow portions of the discrete areas and the liquid ink they contain to be separately heated instead heating an entire volume of liquid ink.

38. (New) The inkjet printer of claim 34, wherein the electronic heating elements comprise heating resistors.

39. (New) The inkjet printer of claim 34, wherein the electronic heating elements are separated from the photon absorption layers by electrically insulating layers.

40. (New) The inkjet printer of claim 34, wherein the electronic heating elements are substantially coplanar with the photon absorption layers but located at different positions along the length of the printhead assembly.

41. (New) The inkjet printer of claim 34, further comprising a transparent substrate on which the heating layers are provided.